WM-AF22/AF28/BF22/BF28

SERVICE MANUAL

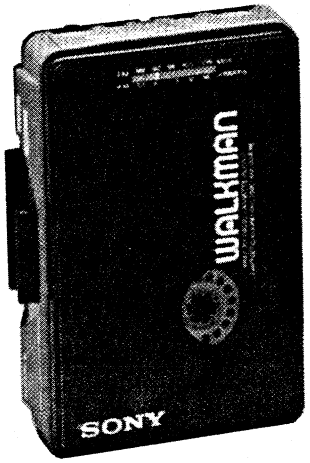


Photo : WM-AF22
(See page13)

US Model
Canadian Model
WM-AF22

AEP Model
UK Model
E Model
WM-BF22

US Model
WM-AF28

AEP Model
UK Model
WM-BF28

Model Name Using Similer Mechanism	WM-31/41
Tape Transport Mechanism Type	MF-WMAF22-04
	MF-WMBF22-04

SPECIFICATIONS

Frequency range FM: 87.5 - 108 MHz (Italian model)
87.6 - 107 MHz (West German model)
87.6 - 108 MHz (Other model)
AM: 526.5 - 1,606.5 kHz (Italian model)
531-1,602 kHz (West German model)
530 - 1,605 kHz (Other model)

Frequency response 40 - 15,000 Hz

Power output
For E model
5 mW + 5 mW at DC operation
(at 10% harmonic distortion) load impedance 16 ohms
For other countries:
10 mW + 10 mW at DC operation
(at 10% harmonic distortion) load impedance 32 ohms

Power requirements
3 V DC
Two R6 (size AA) batteries
Sony rechargeable battery BP-700
DC IN 3 V jack accepts
Optional Sony AC-D2L AC power adaptor
available in United Kingdom for use on 240 V AC, 50 Hz.
available in Canada for use on 120 V AC, 60 Hz
available in other countries for use on 120 V AC, 60 Hz or 220 V AC, 50 Hz

Battery life
Approx. 8 hours on tape playback and approx. 30 hours on FM reception, using Sony alkaline batteries AM3 (N).

Dimensions
WM-AF22/BF22: Approx. 88 × 134 × 31.5 mm (w/h/d)
Other models: Approx. 88 × 134 × 32.5 mm (w/h/d)
not incl. projecting parts and controls

Weight
WM-AF22/BF22: Approx. 225 g
Other models: Approx. 230 g
incl. batteries, not incl. other accessories

Accessories supplied
For Canada and the United Kingdom: Stereo Headphones (Open-air type, 1)
For other countries: Stereo earphones (Open-air type, 1)
Ear adaptor (2)
For only WM-AF28/BF28: Rechargeable battery (1)
Battery charger (1)

This instruction manual covers WM-AF22/BF22 and WM-AF28/BF28.

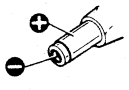
Their defferences are shown in the table below.

	Headphones Earphones	Rechargeable battery (BP-700)	Battery charger (BC-700)	FM sensitivity selector
WM-AF22	Stereo headphones	Optional	Optional	DX/LOCAL
WM-BF22	For United Kingdom: Stereo headphones For other countries: Stereo earphones Ear adaptors			FM ST/MONO
WM-BF28	Stereo headphones	Supplied	Supplied	FM ST/MONO
WM-AF28				DX/LOCAL

Optional Accessories

AC power adaptor AC-D2L
Car battery cord DCC-70
Battery case EBP-500B
Rechargeable battery BP-700
Battery charger BC-700
Stereo active speaker system
SRS-30, SRS-50

Note
If an AC power adaptor or a car battery cord not manufactured by Sony is used, a fuse must be installed in the AC power adaptor or the car battery cord and the polarity of the plug must be as illustrated.



RADIO CASSETTE PLAYER

SONY®

MICROFILM

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

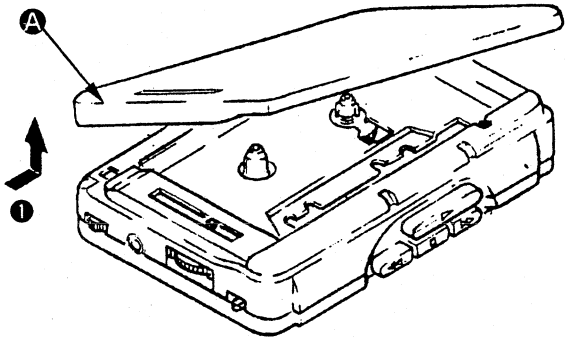
Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SECTION 1
DISASSEMBLY AND INSTALLATION

1-1. CASSET HOLDER ASSY REMOVAL

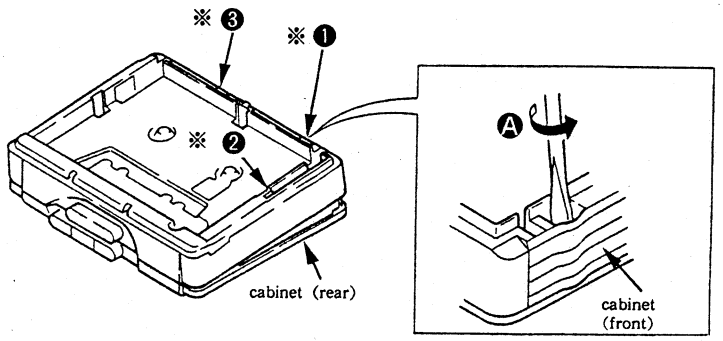
1) Open the cassette holder.
2) Move the left latch in the direction of the arrow ❶ to release it.
3) Release the right latch.
4) Remove the cassette up spring.

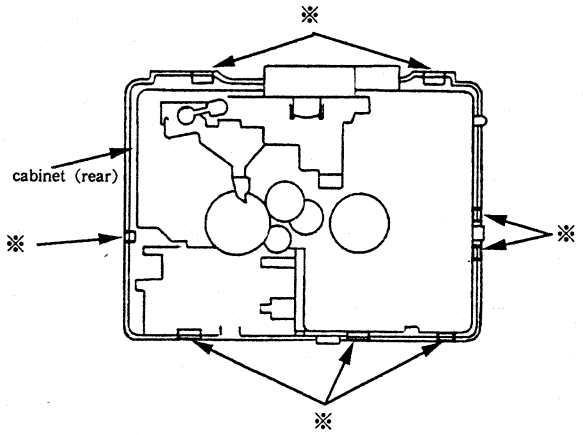


1-2. CABINET (REAR) ASSY REMOVAL

Note :Follow the disassembly procedure the numerical order given.

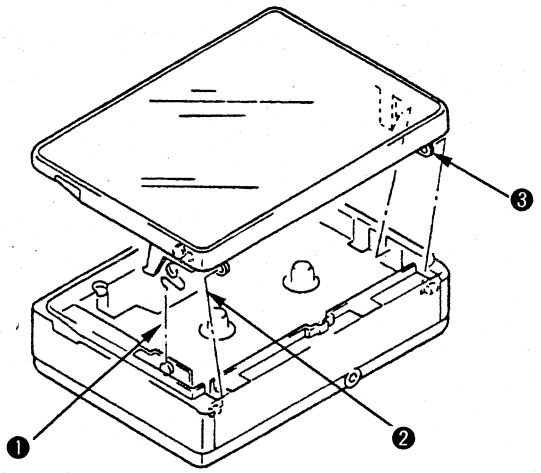
1) Insert a driver (−) in to the portion (※).
2) Move the driver in the direction of the arrow (Ⓐ).
3) Release the claw (※).





1-3. CASSET HOLDER ASSY INSTALLATION

Note :Follow the disassembly procedure the numerical order given.



SECTION 2
MECHANICAL AND ELECTRICAL ADJUSTMENTS

MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured−alcohol−moistened swab :
   playback head　　pinch roller
   capstan　　idlers
   rubber belts
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Meter Reading	Torque Meter
Foward	22−45g · cm (0.31−0.63oz · inch)	CQ-102C
Fast Forwand and Rewind	55−150g · cm (0.77−2.1oz · inch)	CQ-201B
Back Tension	1−2.5g · cm (0.014−0.35oz · inch)	CQ-102C

Tape Tension Measurement

Meter	Meter Reading
CQ-403A	more than 90g (1.26oz)

ELECTRICAL ADJUSTMENTS

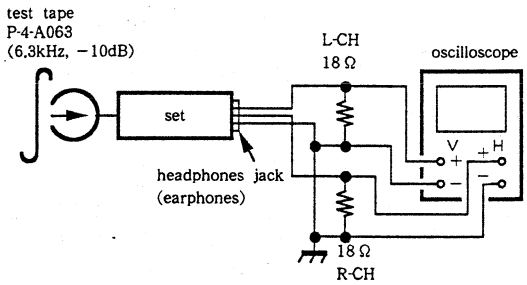
CASSETTE SECTION

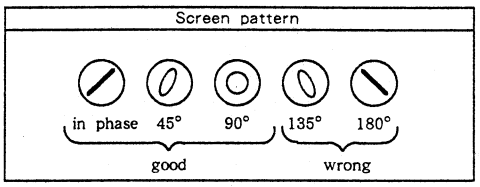
Playback Head Phase Check

Note :When replacing the head, check the both L-ch and R-ch phases.

Procedure :

Phase Check
Mode : playback

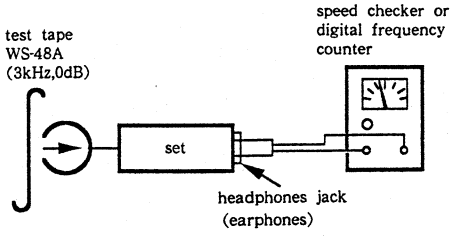




Tape Speed Adjustment

Procedure :

Mode : playback

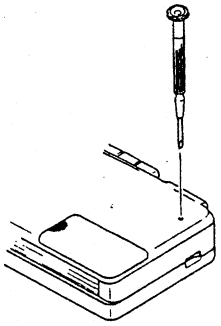


Specification :

speed checker	digital frequency counter
±1%	2,970−3,030Hz

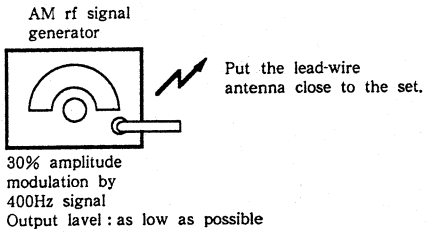
Frequency difference between the beginning and the end of the tape should be within±2.5% (±75%Hz).

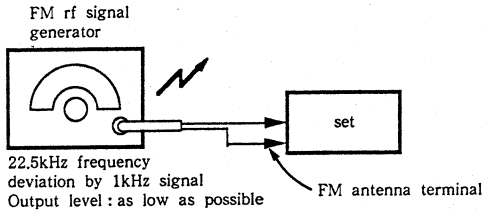
Adjustment Location



ELECTRICAL ADJUSTMENTS

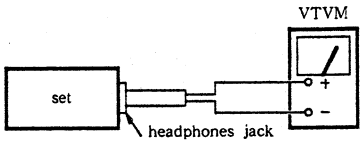
TUNER SECTION





Note :

For adjustment of WM−BF22/BF28 BAND SW at STEREO.



●Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

( ) : WG model
[ ] : IT model
(( )) : WG, IT model

FM Frequency Coverage Adjustment

Pointer position	SG frequency	Adjustment part	
f minimum	86.0MHz ((87.35MHz))	L3	maximum
f maximum	109.5MHz (107.8MHz) [108.25MHz]	CT3	maximum

FM Tracking Adjustment

SG and set frequency	Adjustment part	Reading on VTVM
86.0MHz (87.35MHz)	L2	maximum
109.5MHz (107.8MHz) [108.25MHz]	CT2	maximum

MW Frequency Coverage Adjustment

Pointer position	SG frequency	Adjustment part	Reading on VTVM
f minimum	505kHZ ((516.5kHz))	L4	maximum
f maximum	1,680kHz ((1,631.5kHz))	CT4	

MW Tracking Adjustment

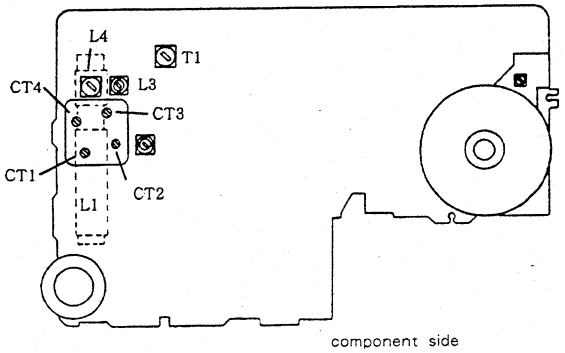
SG and set frequency	Adjustment part	Reading on VTVM
620kHz	L1	maximum
1,400kHz	CT1	

MW IF Alignment

SG and set frequency	Adjustment part	Reading on VTVM
455kHz 〈468kHz〉	T1	maximum

〈 〉: UK model

ADJUSTMENT LOCATION



SECTION 3
DIAGRAMS

Note:

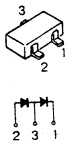
- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- ■ : parts mounted on the conductor side.
- indicates side identified with part number.
- ⊗ : Through hole.
- : Pattern of the rear side.
- □ : Chip components extracted from the rear side.

Semiconductor Location

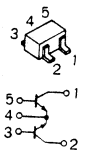
Ref.No.	Location
IC1	D-11
IC301	H-11
Q101	I-11
Q201	I-12
Q301	F-11
Q303	I-13
D1	C-12

Semiconductor Lead Layouts

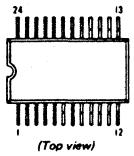
ISS123



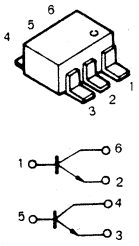
XN1501



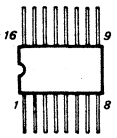
TA8122AF



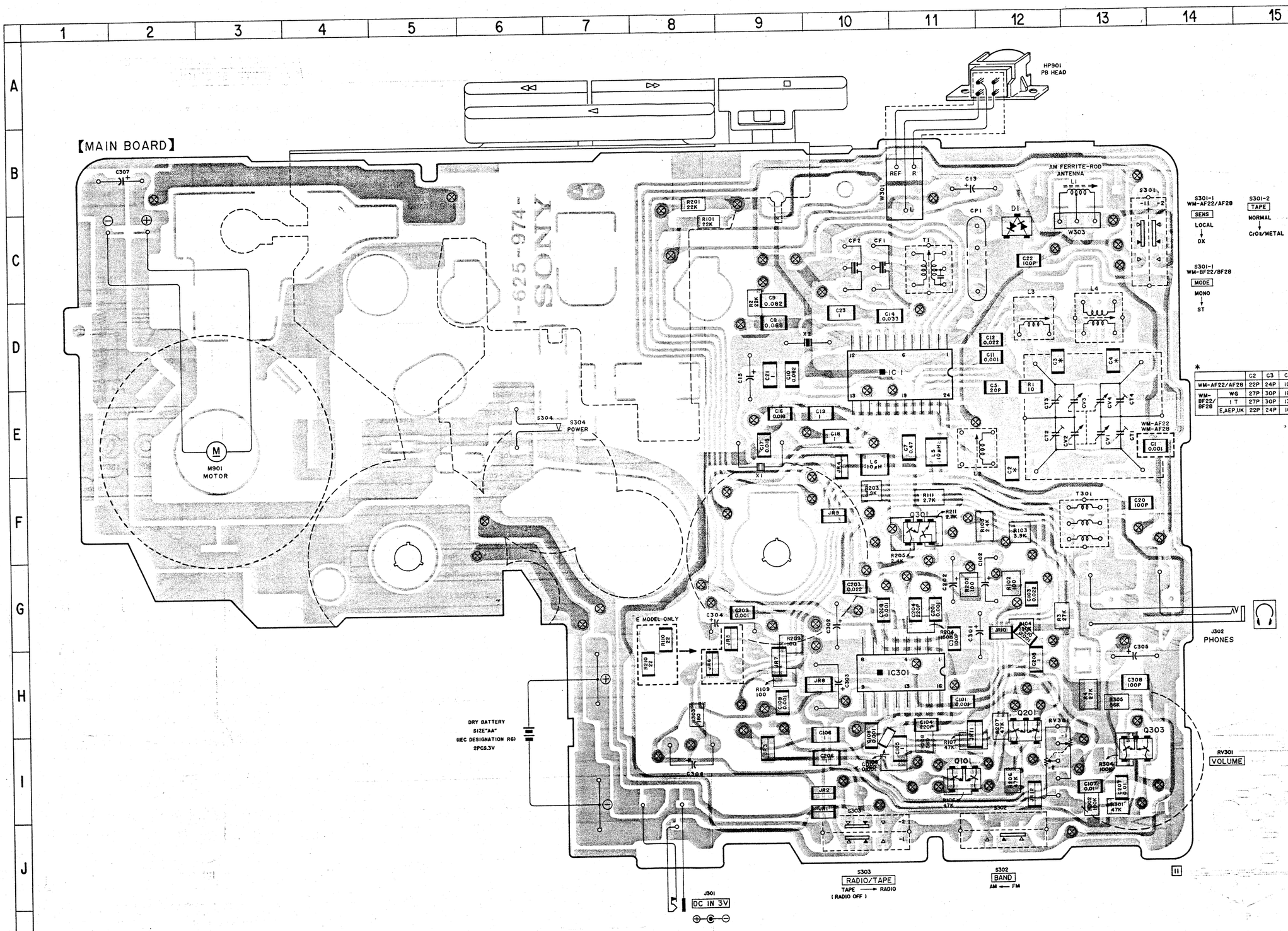
XN6501



LA4570

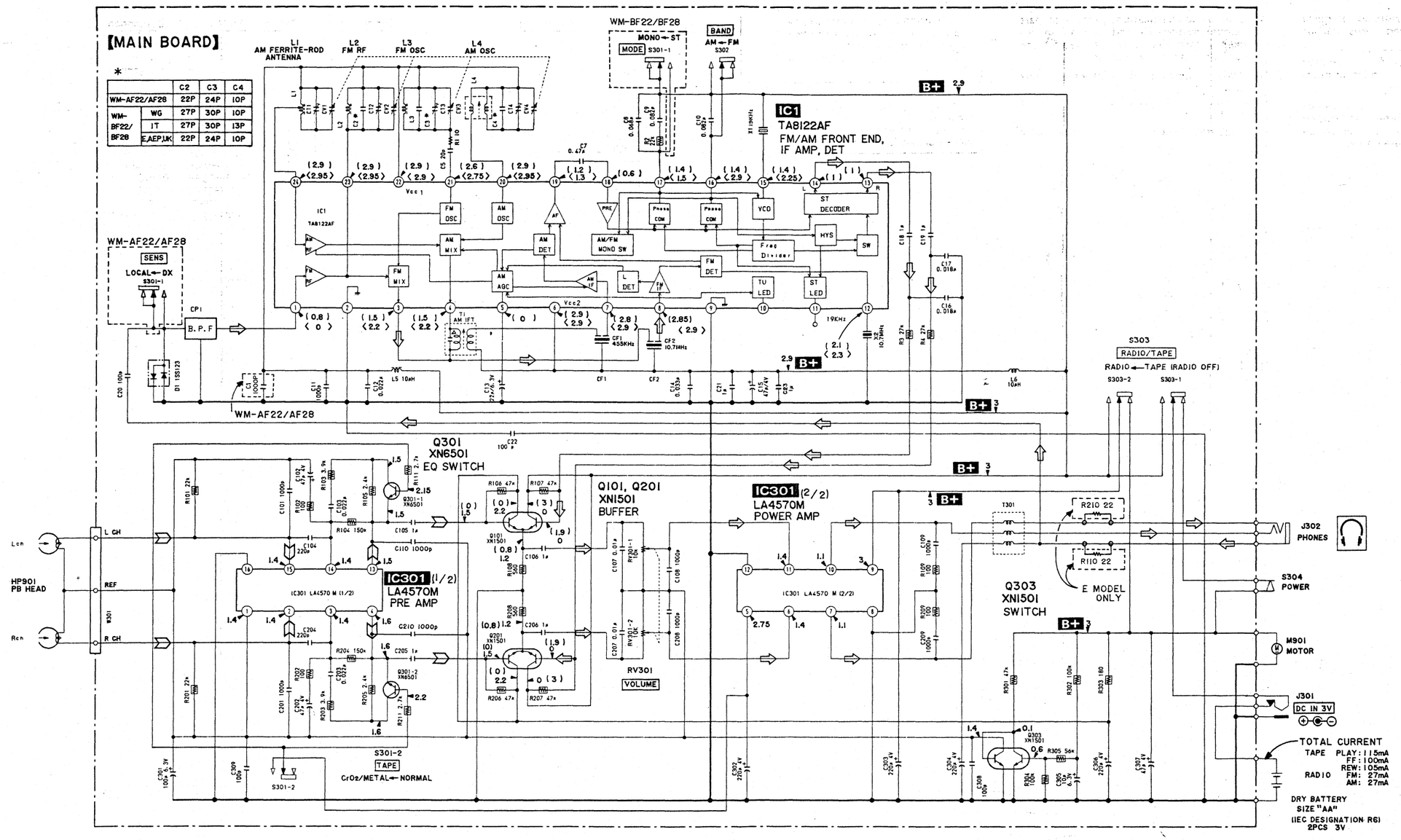


【MAIN BOARD】



*

	C2	C3	C4
WM-AF22/AF28	22P	24P	10P
WM-BF22/BF28 WG	27P	30P	10P
WM-BF22/BF28 T T	27P	30P	13P
WM-BF22/BF28 E,AEP,UK	22P	24P	10P



		C2	C3	C4
WM-AF22/AF28		22P	24P	10P
WM-BF22/	WG	27P	30P	10P
	IT	27P	30P	13P
BF28	E,AEP,UK	22P	24P	10P

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- △ : internal component.
- ⊣W⊢ : printed resistor.

- Switch

Ref. No.	Switch	Position
S301-1	WM-AF22/AF28 LOCAL / DX WM-BF22/BF28 MONO / ST	DX ST
S301-2	TAPE	NORM
S302	BAND	FM
S303	FUNCTION	TAPE
S304	POWER	OFF

- B+ : B+ Line
- ▭ : adjustment for repair.

- Total current is measured with no cassette installed.
- Power voltage is dc 3V and fed with requrated dc power. supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark: PLAY
  ( ): FM
  < >: AM
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM ⇨ : PB (DECK A)

SECTION 4
EXPLODED VIEW

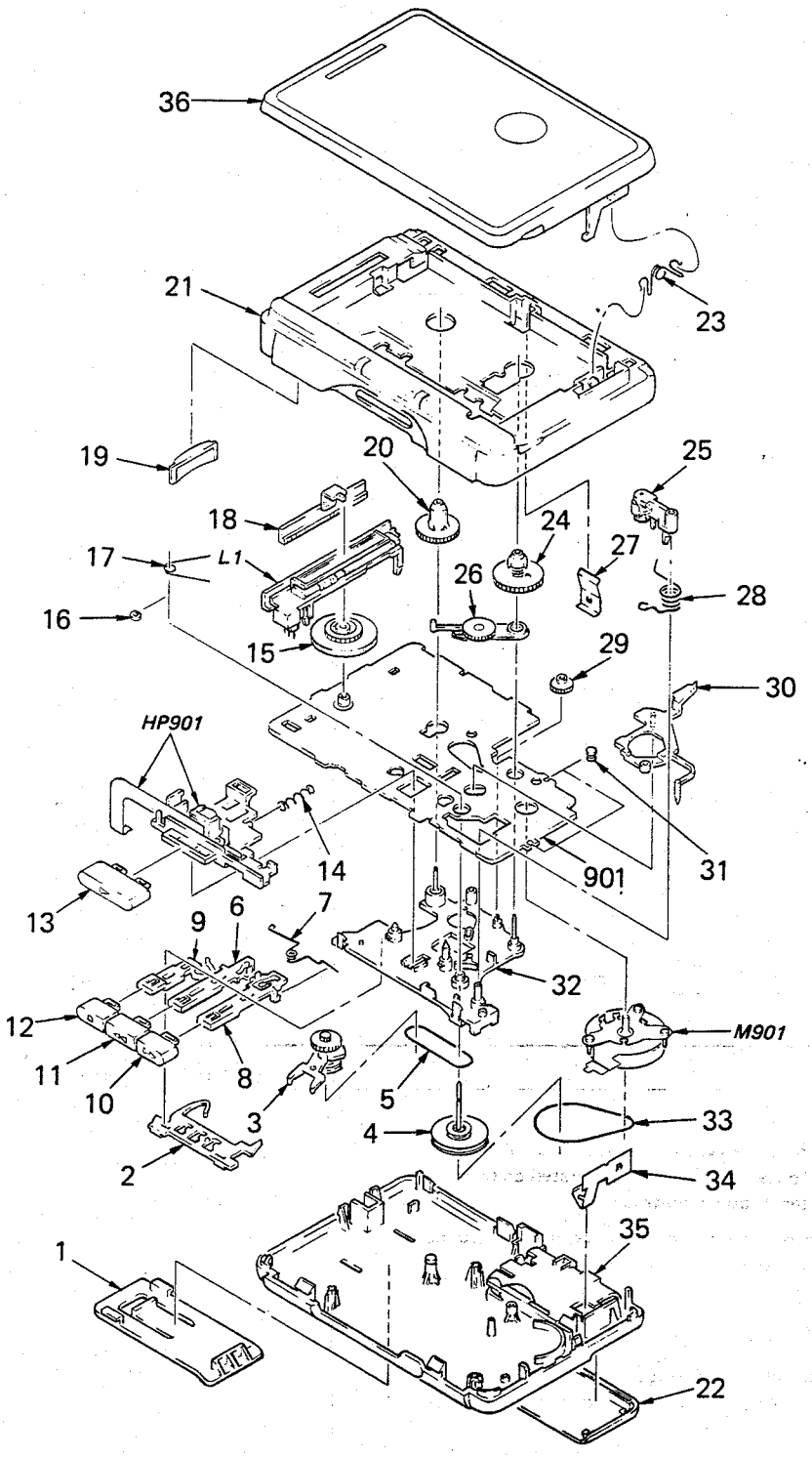
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) ... KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

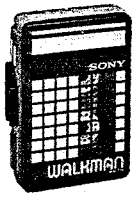
(1)



Ref.No	Part No.	Description	Remark
1	3-346-518-01	CLIP, BELT	
2	3-346-522-01	PLATE, LOCK	
3	X-3346-503-1	GEAR ASSY, MIDWAY	
4	X-3346-505-1	WHEEL ASSY, CAPSTAN	
5	3-335-604-01	BELT, MIDWAY	
6	3-346-527-01	LEVER (REW)	
7	3-346-539-01	SPRING (FR)	
8	3-346-526-01	LEVER (FF)	
9	3-346-528-01	LEVER (STOP)	
10	3-346-513-01	(WM-AF22/BF22)....BUTTON (FF)	
11	3-346-514-01	(WM-AF22/BF22)....BUTTON (REW)	
12	3-346-515-01	(WM-AF22/BF22)....BUTTON (STOP)	
13	3-346-512-01	(WM-AF22/BF22)....BUTTON (PLAY)	
13	3-346-512-11	(WM-AF28/BF28)....BUTTON (PLAY)	
10	3-346-513-11	(WM-AF28/BF28)....BUTTON (FF)	
11	3-346-514-11	(WM-AF28/BF28)....BUTTON (REW)	
12	3-346-515-11	(WM-AF28/BF28)....BUTTON (STOP)	
14	3-335-605-01	SPRING, COMPRESSION	
15	3-346-502-01	KNOB (TU)	
16	3-343-358-01	RING, RETAINING	
17	3-346-538-01	SPRING (GROUND)	
18	3-346-503-01	POINTER	
19	3-346-504-01	COVER, KNOB	
20	3-346-525-01	GEAR (S REEL)	
21	3-346-508-01	(WM-AF22 : BLK)....CABINET (FRONT) (CF-A)	
21	3-346-508-11	(WM-AF22 : GRY)....CABINET (FRONT) (CF-A)	
21	3-346-508-21	(WM-BF22 : BLK)....CABINET (FRONT) (CF-A)	
21	3-346-508-31	(WM-BF22 : GRY)....CABINET (FRONT) (CF-A)	
21	3-346-721-01	(WM-AF28 : BLK)....CABINET (FRONT)	
21	3-346-721-11	(WM-AF28 : GRY)....CABINET (FRONT)	
21	3-346-721-21	(WM-BF28 : BLK : AEP, IT, UK)....CABINET (FRONT)	
21	3-346-721-31	(WM-BF28 : GRY : AEP, IT, UK)....CABINET (FRONT)	
21	3-346-721-41	(WM-BF28 : BLK : WG)....CABINET (FRONT)	
21	3-346-721-51	(WM-BF28 : GRY : WG)....CABINET (FRONT)	
22	3-346-517-01	LID, BATTERY CASE (BLK)	
22	3-346-517-11	LID, BATTERY CASE (WHT)	
22	3-346-517-21	LID, BATTERY CASE (RED)	
22	3-346-517-31	LID, BATTERY CASE (BLU)	
23	3-346-509-01	SPRING	
24	X-3346-502-1	TABLE ASSY, T REEL	
25	X-3334-005-1	PINCH ROLLER ASSY	
26	X-3346-504-1	GEAR ASSY, PLAY	
27	3-346-516-01	SPRING	
28	3-335-608-01	SPRING	
29	3-334-089-01	GEAR, FF	
30	3-346-523-01	LEVER (SHUT-OFF)	
31	3-335-652-01	CUSHION (C), MOTOR	
32	X-3346-501-1	BASE ASSY, GUIDE	
33	3-334-412-01	BELT, CAPSTAN	
34	3-334-057-01	TERMINAL BOARD, RELAY	
35	3-346-506-01	CABINET (REAR) (CF-C) (BLK)	
35	3-346-506-11	(WM-AF22/BF22 : WHT)....CABINET (REAR) (CF-C)	
35	3-346-506-21	(WM-AF22/BF22 : RED)....CABINET (REAR) (CF-C)	
35	3-346-506-31	(WM-AF22/BF22 : BLU)....CABINET (REAR) (CF-C)	
36	X-3346-541-1	(WM-BF28 : AEP, IT, UK)....(fMAX—108MHz) HOLDER (CF-B) ASSY, CASSETTE	
36	X-3346-542-1	(WM-BF28 : WG)....(fMAX—107MHz) HOLDER (CF-B) ASSY, CASSETTE	
36	X-3346-543-1	(WM-AF28)....HOLDER (CF-B) ASSY, CASSETTE	
901	A-3060-103-A	(WM-AF22/AF28)....MOUNTED PCB, MAIN	
HP901	A-3108-292-A	PC BOARD ASSY, HEAD	
L1	1-402-361-11	ANTENNA, FERRITE-ROD (MW)	

• CASSETTE HOLDER ASSY (WM-AF22/BF22)

X-3346-570-1 (fmax-108)
X-3346-585-1 (fmax-106) WG, IT model



X-3346-571-1

X-3346-572-1 (fmax-108)
X-3346-586-1 (fmax-106) WG, IT model

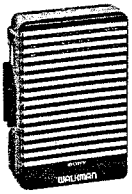
X-3346-573-1 (WHT)

X-3346-574-1 (BLK)

X-3346-575-1 (RED) (fmax-108)
X-3346-587-1 (fmax-106) WG, IT model

X-3346-576-1 (BLU)

X-3346-577-1 (fmax-108)
X-3346-588-1 (fmax-106) WG, IT model



X-3346-578-1 (fmax-108)
X-3346-589-1 (fmax-106) WG, IT model

X-3346-579-1

X-3346-580-1

X-3346-581-1

X-3346-582-1

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No	Part No.	Description			Remark
901	A-3060-103-A	(WM-AF22/AF28)....MOUNTED PCB, MAIN			
		CAPACITOR			
C1	1-163-141-00	(WM-AF22/AF28) ....CERAMIC CHIP	0.001MF	10%	50V
C2	1-163-101-00	(WM-AF22/AF28, BF22/BF28 : AEP, E, UK) ....CERAMIC CHIP	22PF	10%	50V
C2	1-163-103-00	(WM-BF22/BF28 : WG, IT) ....CERAMIC CHIP	27PF	10%	50V
C3	1-163-475-91	(WM-AF22/AF28, BF22/BF28 : AEP, E, UK) ....CERAMIC CHIP	24PF	5%	50V
C3	1-163-477-00	(WM-BF22/BF28 : WG, IT) ....CERAMIC CHIP	30PF	5%	50V
C4	1-163-093-00	(WM-AF22/AF28, BF22/ BF28 : AEP, E, UK, WG) ....CERAMIC CHIP	10PF	5%	50V
C4	1-163-469-91	(WM-BF22/BF28 : IT) ....CERAMIC CHIP	13PF	5%	50V
C5	1-163-100-00	CERAMIC CHIP	20PF	5%	50V
C7	1-162-637-11	CERAMIC CHIP	0.47MF		16V
C8	1-164-157-91	CERAMIC CHIP	0.068MF	10%	25V
C9	1-164-158-91	CERAMIC CHIP	0.082MF	10%	25V
C10	1-164-158-91	CERAMIC CHIP	0.082MF	10%	25V
C11	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C12	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C13	1-124-222-00	ELECT	22MF	20%	6.3V
C14	1-163-078-11	CERAMIC CHIP	0.033MF	10%	25V
C15	1-124-432-00	ELECT	47MF	20%	4V
C16	1-163-024-00	CERAMIC CHIP	0.018MF	10%	50V
C17	1-163-024-00	CERAMIC CHIP	0.018MF	10%	50V
C18	1-162-611-00	CERAMIC CHIP	1MF		25V
C19	1-162-611-00	CERAMIC CHIP	1MF		25V
C20	1-163-117-00	CERAMIC CHIP	100PF	10%	50V
C21	1-162-611-00	CERAMIC CHIP	1MF		25V
C22	1-163-117-00	CERAMIC CHIP	100PF	10%	50V
C23	1-162-611-00	CERAMIC CHIP	1MF		25V
C101	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C102	1-124-432-00	ELECT	47MF	20%	4V
C103	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C104	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C105	1-162-611-00	CERAMIC CHIP	1MF		25V
C106	1-162-611-00	CERAMIC CHIP	1MF		25V
C107	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C108	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C109	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C110	1-163-009-00	CERAMIC CHIP	0.001MF	10%	50V
C201	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C202	1-124-432-00	ELECT	47MF	20%	4V
C203	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C204	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C205	1-162-611-00	CERAMIC CHIP	1MF		25V
C206	1-162-611-00	CERAMIC CHIP	1MF		25V
C207	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C208	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C209	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C210	1-163-009-00	CERAMIC CHIP	0.001MF	10%	50V
C301	1-124-225-00	ELECT	100MF	20%	6.3V
C302	1-124-434-00	ELECT	220MF	20%	4V
C303	1-124-434-00	ELECT	220MF	20%	4V
C304	1-124-434-00	ELECT	220MF	20%	4V
C305	1-124-462-00	ELECT	10MF	20%	6.3V
C306	1-124-434-00	ELECT	220MF	20%	4V
C307	1-124-432-00	ELECT	47MF	20%	4V
C308	1-163-205-00	CERAMIC CHIP	0.001MF	10%	50V
C309	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
CF1	1-527-870-00	FILTER (455KHz)			
CF2	1-577-090-71	FILTER, CERAMIC (10.7MHz)			
CP1	1-236-022-11	FILTER, BAND PASS			
D1	8-719-101-23	DIODE 1SS123			
HP901	A-3108-292-A	PC BOARD ASSY, HEAD			
IC1	8-759-230-39	IC TA8122AF			
IC301	8-759-820-19	IC LA4570M			
J301	1-565-286-11	JACK, OUTER POWER			
J302	1-565-287-11	JACK (PHONES)			
JR1	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR2	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR3	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR4	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR5	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR6	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR7	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR8	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR9	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR10	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR11	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR12	1-216-296-00	METAL GLAZE	0	5%	1/8W
L1	1-402-361-11	ANTENNA, FERRITE-ROD (MW)			
L2	1-459-843-11	COIL (WITH CORE) (FM RF)			
L3	1-459-845-11	COIL (WITH CORE) (FM OSC)			
L4	1-406-283-11	COIL (OSC) (MW)			
L5	1-410-204-31	INDUCTOR CHIP 10UH			
L6	1-410-204-31	INDUCTOR CHIP 10UH			
M901	1-541-572-11	MOTOR, DC			
PVC1	1-151-599-11	CAP, VAR, POLYETHYLENE			
Q101	8-729-402-13	TRANSISTOR XN1501			
Q201	8-729-402-13	TRANSISTOR XN1501			
Q303	8-729-402-13	TRANSISTOR XN1501			

Ref.No	Part No.	Description			Remark
		RESISTOR			
R1	1-216-001-00	METAL GLAZE	10	5%	1/10W
R2	1-249-433-11	RES, CARBON	22K	5%	1/32W
R3	1-249-434-11	RES, CARBON	27K	5%	1/32W
R4	1-249-434-11	RES, CARBON	27K	5%	1/32W
R101	1-249-433-11	RES, CARBON	22K	5%	1/32W
R102	1-249-405-11	RES, CARBON	100	5%	1/32W
R103	1-249-424-11	RES, CARBON	3.9K	5%	1/32W
R104	1-215-473-00	RES, CARBON	150K	5%	1/32W
R105	1-215-430-00	RES, CARBON	2.4K	5%	1/32W
R106	1-249-437-11	RES, CARBON	47K	5%	1/32W
R107	1-249-437-11	RES, CARBON	47K	5%	1/32W
R108	1-249-414-11	RES, CARBON	560	5%	1/32W
R109	1-249-405-11	RES, CARBON	100	5%	1/32W
R110	1-216-009-00	(WM-BF22/BF28 : E) ....METAL GLAZE	22	5%	1/10W
R111	1-249-422-11	RES, CARBON	2.7K	5%	1/32W
R201	1-249-433-11	RES, CARBON	22K	5%	1/32W
R202	1-249-405-11	RES, CARBON	100	5%	1/32W
R203	1-249-424-11	RES, CARBON	3.9K	5%	1/32W
R204	1-215-473-00	RES, CARBON	150K	5%	1/32W
R205	1-215-430-00	RES, CARBON	2.4K	5%	1/32W
R206	1-249-437-11	RES, CARBON	47K	5%	1/32W
R207	1-249-437-11	RES, CARBON	47K	5%	1/32W
R208	1-249-414-11	RES, CARBON	560	5%	1/32W
R209	1-249-405-11	RES, CARBON	100	5%	1/32W
R210	1-216-009-00	(WM-BF22/BF28 : E) ....METAL GLAZE	22	5%	1/10W
R211	1-249-422-11	RES, CARBON	2.7K	5%	1/32W
R301	1-249-437-11	RES, CARBON	47K	5%	1/32W
R302	1-249-441-11	RES, CARBON	100K	5%	1/32W
R303	1-249-408-11	RES, CARBON	180	5%	1/32W
R304	1-249-441-11	RES, CARBON	100K	5%	1/32W
R305	1-249-438-11	RES, CARBON	56K	5%	1/32W
RV301	1-238-072-11	RES, VAR, CABON 10K/10K			
S301	1-571-478-11	SWITCH, SLIDE (TAPE)			
S302	1-571-478-11	SWITCH, SLIDE (BAND)			
S303	1-571-478-11	SWITCH, SLIDE (SENS/MODE)			
S304	1-570-549-11	SWITCH, LEAF (POWER)			
T1	1-404-791-21	TRANSFORMER, IF			
T1	1-404-792-21	TRANSFORMER, IF (UK)			
W301	1-565-288-11	HOUSING, CONNECTOR 3P			
W303	1-565-285-11	HOUSING, CONNECTOR(PC BAORD)3P			
X1	1-577-091-11	OSCILLATOR, CRYSTAL (19KHz)			
X2	1-577-090-71	FILTER, CERAMIC (10.7MHz)			

ACCESSORY & PACKING MATERIAL

Part No.	Description	Remark
⚠1-528-238-11	(WM-AF28 : US)....BATTERY, CHARGER	
1-528-239-21	(WM-AF28/BF28)....BATTERY, STORAGE,LEAD (BP-700)	
⚠1-528-263-11	(WM-AF28 : CA)....BATTERY, CHARGER	
⚠1-528-262-11	(WM-BF28 : AEP, WG, IT)....BATTERY, CHARGER	
⚠1-528-264-11	(WM-BF28 : UK)....BATTERY, CHARGER	
*3-346-543-01	(WM-AF22/AF28)....CUSHION (UPPER)	
*3-346-549-01	(WM-AF22/BF28)....CUSHION (FRONT)	
*3-346-553-01	(WM-AF22/AF28)....CUSHION (LOWER)	
*3-346-554-01	(WM-AF22)....CARDBOARD	
*3-346-558-01	(WM-AF22/BF28)....CUSHION (REAR)	
3-786-015-11	(WM-AF22/AF28 : CA, BF22/BF28 : E, AEP, UK) ....MANUAL, INSTRUCTION	
3-786-015-21	(WM-AF22/AF28 : US)....MANUAL, INSTRUCTION	
3-786-015-41	(WM-BF22/BF28 : AEP, IT, GW)....MANUAL, INSTRUCTION	
8-952-313-90	(WM-AF22/AF28, BF22/BF28 : AEP, UK, IT, WG) ....HEADPHONE MDR-005L/B SET	
8-952-236-90	(WM-BF22 : E)....HEADPHONE MDR-E212/J (B) SET	

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

WM-AF22/AF28/BF22/BF28

SONY

SERVICE MANUAL

US Model
Canadian Model
WM-AF22

AEP Model
UK Model
E Model
WM-BF22

US Model
WM-AF28

AEP Model
UK Model
WM-BF28

SUPPLEMENT-1

File this supplement with the Service Manual.

Subject :

1. Addition of French Model and Brazilian Model.
2. Correction of Main Mounted PCB's Part No.

1. WM-BF22 is newly designed as the models and based on WM-BF22 of AEP model. This supplement only contains the different between the models and AEP model.

2. Main Mounted PCB's Part No. was misprinted in the service manual. See page 3 of Service manual supplement-1 for detail.

☛: **Corrected portion**

SECTION 4
EXPLODED VIEW

NOTE:

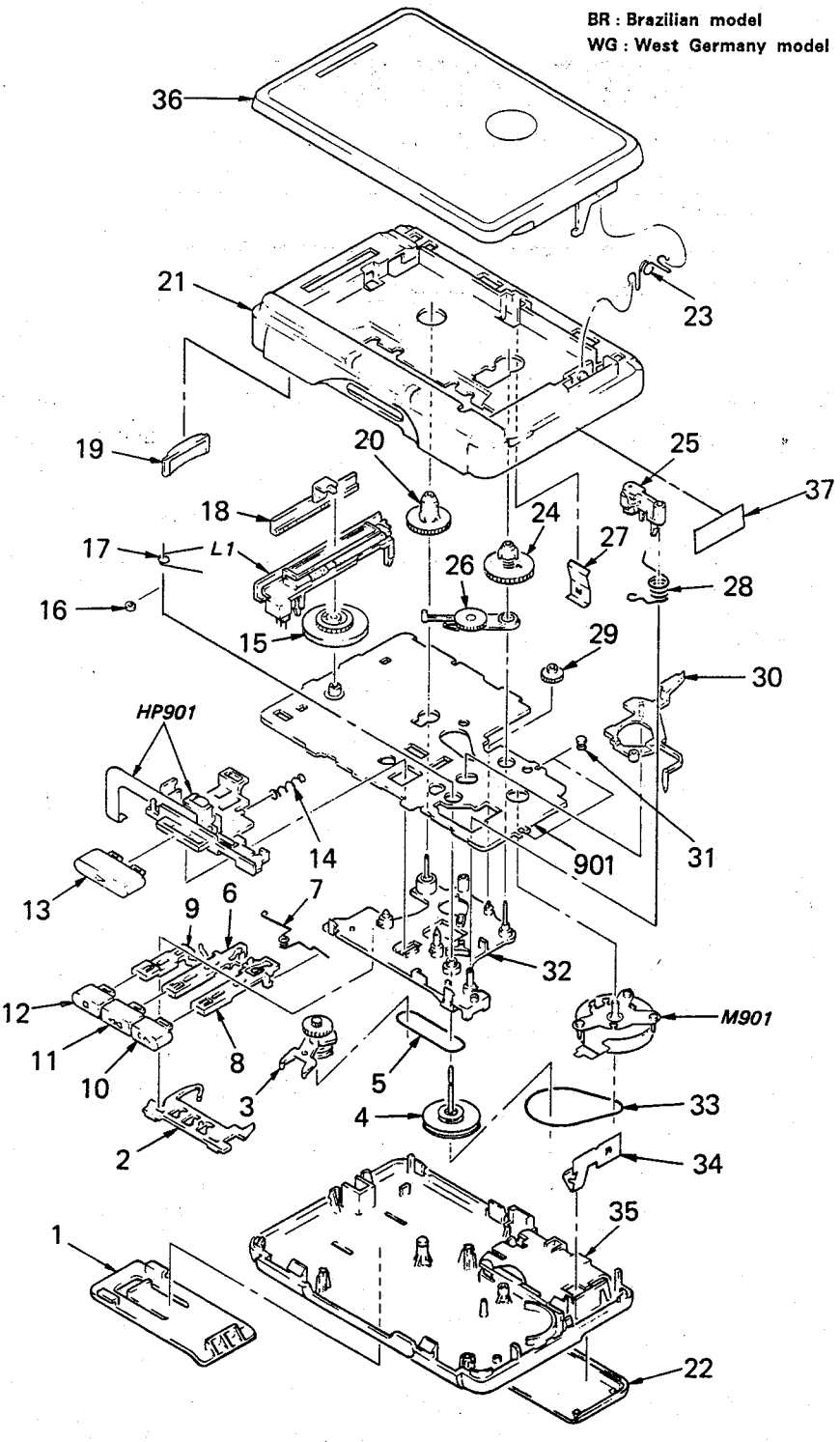
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

(1)

FR : French model
BR : Brazilian model
WG : West Germany model



Ref.No	Part No.	Description	Remark
1	3-346-518-01	CLIP, BELT	
2	3-346-522-01	PLATE, LOCK	
3	X-3346-503-1	GEAR ASSY, MIDWAY	
4	X-3346-505-1	WHEEL ASSY, CAPSTAN	
5	3-335-604-01	BELT, MIDWAY	
6	3-346-527-01	LEVER (REW)	
7	3-346-539-01	SPRING (FR)	
8	3-346-526-01	LEVER (FF)	
9	3-346-528-01	LEVER (STOP)	
10	3-346-513-01	(WM-AF22/BF22)....BUTTON (FF)	
11	3-346-514-01	(WM-AF22/BF22)....BUTTON (REW)	
12	3-346-515-01	(WM-AF22/BF22)....BUTTON (STOP)	
13	3-346-512-01	(WM-AF22/BF22)....BUTTON (PLAY)	
13	3-346-512-11	(WM-AF28/BF28)....BUTTON (PLAY)	
10	3-346-513-11	(WM-AF28/BF28)....BUTTON (FF)	
11	3-346-514-11	(WM-AF28/BF28)....BUTTON (REW)	
12	3-346-515-11	(WM-AF28/BF28)....BUTTON (STOP)	
14	3-335-605-01	SPRING, COMPRESSION	
15	3-346-502-01	KNOB (TU)	
16	3-343-358-01	RING, RETAINING	
17	3-346-538-01	SPRING (GROUND)	
18	3-346-503-01	POINTER	
19	3-346-504-01	COVER, KNOB	
20	3-346-525-01	GEAR (S REEL)	
21	3-346-508-01	(WM-AF22 : BLK)....CABINET (FRONT) (CF-A)	
21	3-346-508-11	(WM-AF22 : GRY)....CABINET (FRONT) (CF-A)	
21	3-346-508-21	(WM-BF22 : BLK)....CABINET (FRONT) (CF-A)	
21	3-346-508-31	(WM-BF22 : GRY)....CABINET (FRONT) (CF-A)	
21	3-346-508-81	(WM-BF22 : FR) .....CABINET (FRONT)	
21	3-346-721-01	(WM-AF28 : BLK)....CABINET (FRONT)	
21	3-346-721-11	(WM-AF28 : GRY)....CABINET (FRONT)	
21	3-346-721-21	(WM-BF28 : BLK : AEP, IT, UK)....CABINET (FRONT)	
21	3-346-721-31	(WM-BF28 : GRY : AEP, IT, UK)....CABINET (FRONT)	

Ref.No	Part No.	Description	Remark
21	3-346-721-41	(WM-BF28 : BLK : WG)....CABINET (FRONT)	
21	3-346-721-51	(WM-BF28 : GRY : WG)....CABINET (FRONT)	
22	3-346-517-01	LID, BATTERY CASE (BLK)	
22	3-346-517-11	LID, BATTERY CASE (WHT)	
22	3-346-517-21	LID, BATTERY CASE (RED)	
22	3-346-517-31	LID, BATTERY CASE (BLU)	
23	3-346-509-01	SPRING	
24	X-3346-502-1	TABLE ASSY, T REEL	
25	X-3334-005-1	PINCH ROLLER ASSY	
26	X-3346-504-1	GEAR ASSY, PLAY	
27	3-346-516-01	SPRING	
28	3-335-608-01	SPRING	
29	3-334-089-01	GEAR, FF	
30	3-346-523-01	LEVER (SHUT-OFF)	
31	3-335-652-01	CUSHION (C), MOTOR	
32	X-3346-501-1	BASE ASSY, GUIDE	
33	3-334-412-01	BELT, CAPSTAN	
34	3-334-057-01	TERMINAL BOARD, RELAY	
35	3-346-506-01	CABINET (REAR) (CF-C) (BLK)	
35	3-346-506-11	(WM-AF22/BF22 : WHT)....CABINET (REAR) (CF-C)	
35	3-346-506-21	(WM-AF22/BF22 : RED)....CABINET (REAR) (CF-C)	
35	3-346-506-31	(WM-AF22/BF22 : BLU)....CABINET (REAR) (CF-C)	
36	X-3346-541-1	(WM-BF28 : AEP, IT, UK)....(fMAX—108MHz) HOLDER (CF-B) ASSY, CASSETTE	
36	X-3346-542-1	(WM-BF28 : WG)....(fMAX—107MHz) HOLDER (CF-B) ASSY, CASSETTE	
36	X-3346-543-1	(WM-AF28)....HOLDER (CF-B) ASSY, CASSETTE	
37	*3-348-413-01	(WM-BF22 : FR)....LABEL, MODEL NUMBER	
901	A-3060-103-A	(WM-AF22/AF28)....MOUNTED PCB, MAIN	
901	A-3060-109-A	(WM-BF22/BF28 : IT)....MOUNTED PCB, MAIN	
901	A-3060-108-A	(WM-BF22/BF28 : E, WM-BF22 : BR)....MOUNTED PCB, MAIN	
901	A-3060-107-A	(WM-BF22/BF28 : WG)....MOUNTED PCB, MAIN	
901	A-3060-106-A	(WM-BF22/BF28 : AEP, FR)....MOUNTED PCB, MAIN	
901	A-3060-105-A	(WM-BF22/BF28 : UK)....MOUNTED PCB, MAIN	
HP901	A-3108-292-A	PC BOARD ASSY, HEAD	
L1	1-402-361-11	ANTENNA, FERRITE-ROD (MW)	

ACCESSORY & PACKING MATERIAL

Part No.	Description
3-786-015-11	(WM-BF22 : BR)....MANUAL, INSTRUCTION
3-786-015-51	(WM-BF22 : FR)....MANUAL, INSTRUCTION

WM-AF22/AF28/BF22/BF28

SONY

SERVICE MANUAL

US Model
Canadian Model
WM-AF22

AEP Model
UK Model
E Model
WM-BF22

US Model
WM-AF28

AEP Model
UK Model
WM-BF28

SUPPLEMENT-2

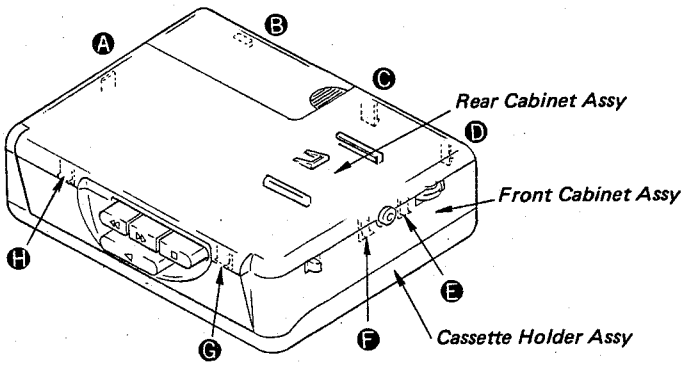
File this supplement with the Service Manual.

Subject: 1] Cassette Holder Removal.
2] Rear Cabinet Removal.

DISASSEMBLY

Location and shape of claws

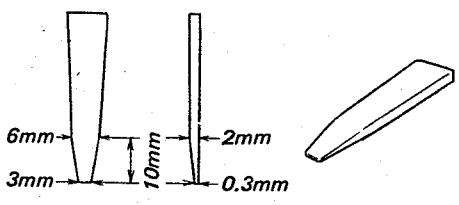
The symbols (Ⓐ – Ⓗ) show the order to uncouple the linkage of the claw, and names of the parts.



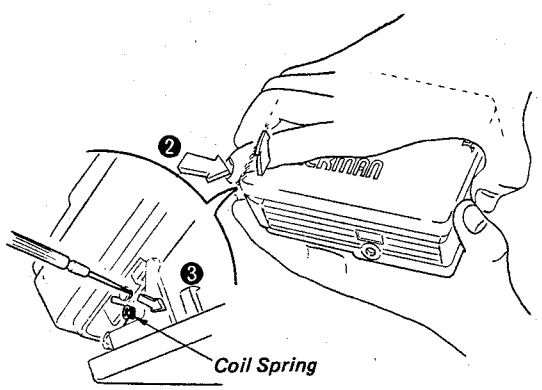
Note: Follow the disassembly procedure the numerical order given.

Tools: Precision Screwdrivers (⊖ , width 0.8mm, 1.4mm, and 2.0mm)
Adhesive tape 1–2cm
Wedge (hand made)

Material . . . soft plastic (such as PVC) etc.
Sizes are for the reference.



[1] Cassette Holder Removal

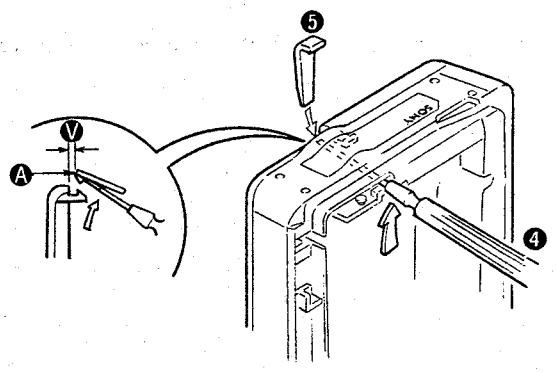


❶ Open the cassette holder.

❷ While pressing the edge of the cassette holder, pull up it in order to take off the cassette holder.

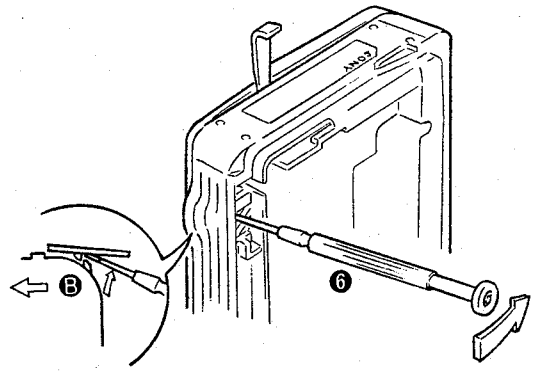
❸ Take off the end of coil spring with a precision screwdriver (width: 0.8mm).

[2] Rear Cabinet Removal

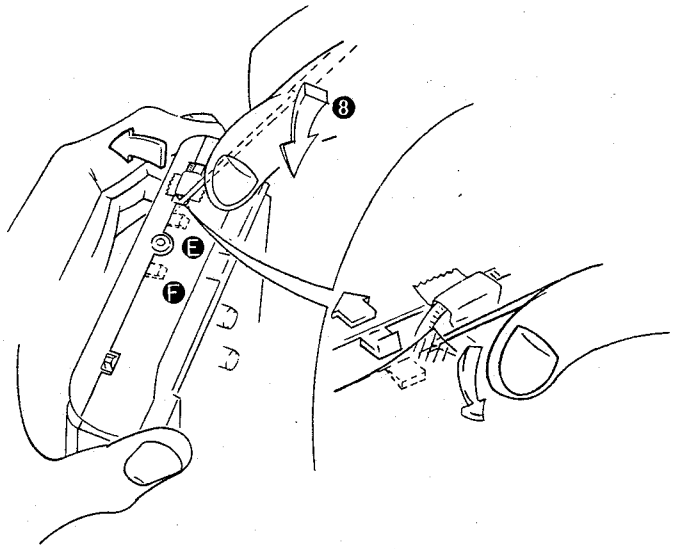


❹ Insert a precision screwdriver (width: 2.0mm) into the slit of front cabinet, lift the front cabinet as shown in the figure for making a clearance (Ⓥ).

❺ Insert a wedge in the clearance.

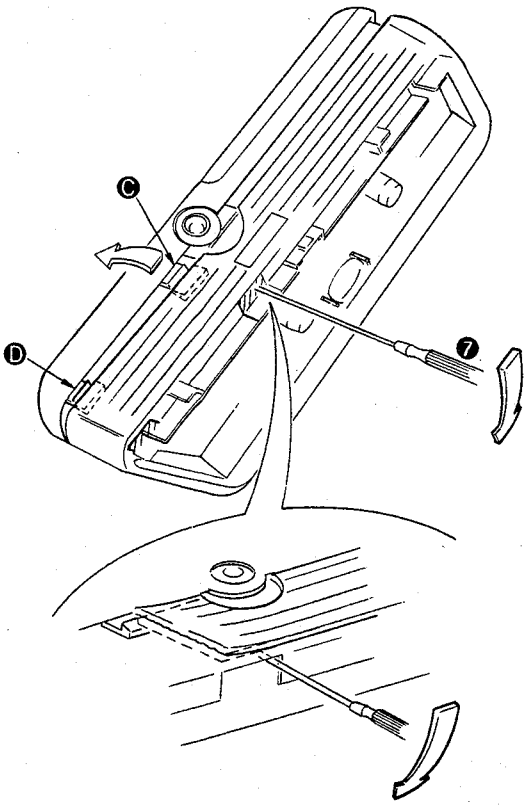


❻ Insert a precision screwdriver (width: 2.0mm), and lift the front cabinet so that the claw Ⓑ comes off.

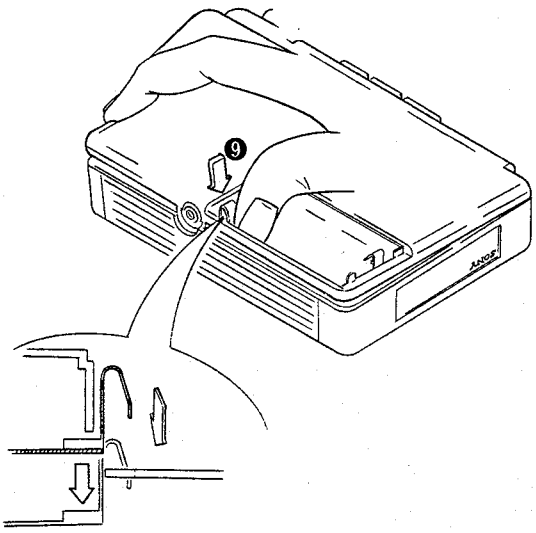


❽ Put a adhesive tape on the volume for protection. Insert a precision screwdriver (width: 1.4 mm) and lift the shaded portion, so that the claw Ⓔ and Ⓕ come off.

CAUTION: Be sure not to touch the volume knob, when inserting precision screwdriver.



❼ In a similar way as procedure ❻ , uncouple the linkage of the claw Ⓒ and Ⓓ .



❾ Press down the battery terminals in order to leave Mounted PCB in the rear cabinet, and then remove the rear cabinet.

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